Exploring Spina: Urbanism, Architecture, and Material Culture

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CROSSING THE ALPS

EARLY URBANISM BETWEEN NORTHERN ITALY AND CENTRAL EUROPE (900-400 BC)

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Chapter 13

Exploring Spina: Urbanism, Architecture, and Material Culture

Aleksandra Mistireki & Lorenzo Zamboni

Spina was a leading emporium in the Upper Adriatic between the late 6th and 4th centuries BC, one of the main trade partners of Athens in the West Mediterranean, and a bridgehead of the Greek interests towards Central Europe. Newly founded towards the end of the 6th century BC inside a wetland landscape, Spina was a commercial centre ruled by a wealthy merchant class whose members probably came from various places of origin, and lived there in a multicultural environment. This is suggested by the admixture of several cultural features, including Greek and Etruscan imports and hundreds of graffiti in different languages. This commercial town flourished for more than a century, until Spina went into crisis during the mid-4th century BC when sling bullets and burnt layers could be linked to a military attack. However, Spina somehow survived that crisis at least until the early 3rd century BC when the site was completely abandoned, except for rural villae nearby after the Roman conquest. This paper offers an overview of recent archive and field research, with a focus on trade, connectivity, settlement layout, and building techniques.

Keywords: Po Valley; Spina; Cultural encounters; Greek and Etruscan trade; Mediterranean connectivity.

13.1 Introduction

The town of Spina is somehow paradoxical. It was one of the richest *emporia*[1] of Classical antiquity, as revealed by the wealth and outstanding number of Mediterranean imports, yet the main settlement was placed in a coastal lagoon, near a marshy swamp, and built with perishable materials, such as timber and straw. This cultural and technological choice according to an aesthetic and qualitative western and 'urban' prejudice, which originated in Classical antiquity and increased during the Renaissance until the Industrial Revolution (Braudel 1973), is considered less prestigious, advanced, and socially adequate when compared to brick and stone buildings. Secondly, Spina was labelled a 'Greek town' by some ancient authors, who remember even a treasury of the Spineti inside the Panhellenic sanctuary in Delphi. However, the material culture discovered during excavations revealed a rather hybridised and 'creolised' culture, with a complex mixture of local and foreign traits forming a middle-grounded societal framework.

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1 The Greek term *emporion* is adopted here in a conventional sense, as referring to a seaport, a trading post, or market of the Classical period, without directly assuming a colonisation movement from a Greek motherland (see further discussion in Gailledrat *et al.* 2018).

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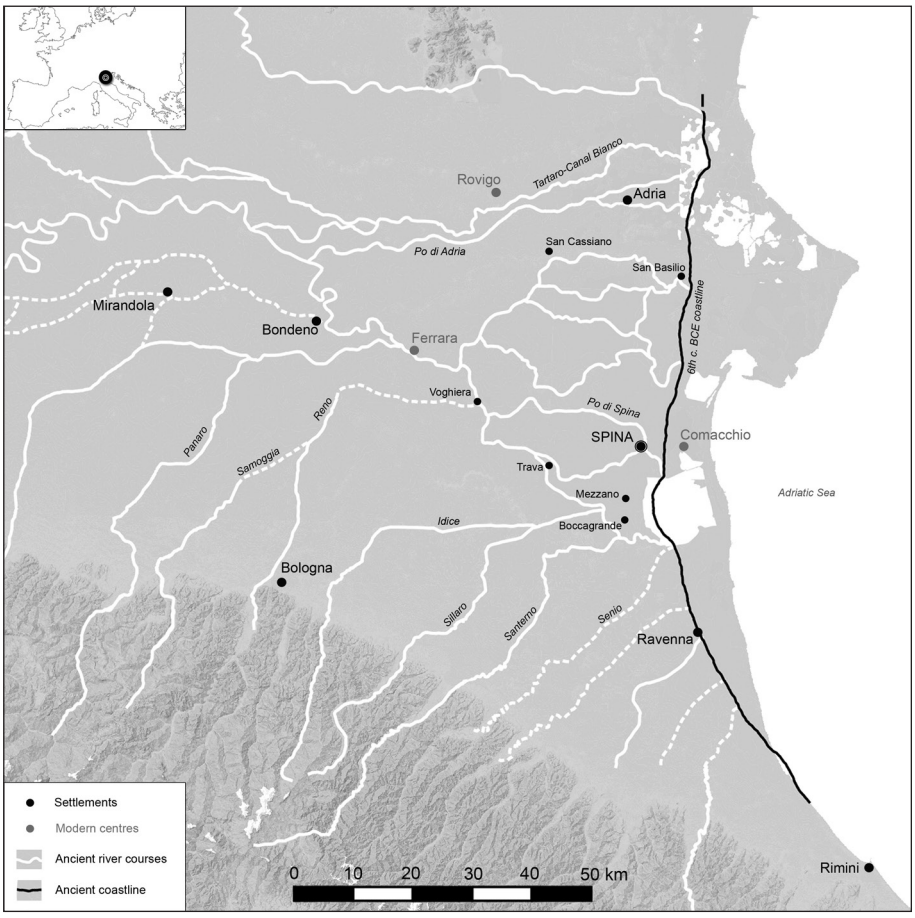

Figure 13.1. Map of the northeastern Po Valley and the Po Delta (L. Zamboni).

More recently Spina has been also linked to a 'liquidity dimension' (Zamboni 2016a; see also Palagiano 2019), *i.e.* metaphorically referring to a site founded inside a waterscape and subject to uncertain and unstable conditions, and to the complexities and contradictions of a polythetic society.

The history of its discovery is also compelling, since Spina lay forgotten for almost two thousand years under the mud of the Po lagoon, only vaguely mentioned by ancient texts, Renaissance, and modern antiquarians. Finally, in 1922 the first graves were accidentally discovered during land reclamation, and the settlement area was brought to light during the 1960s. Recent excavations in the settlement area documented several phases of burning, collapses, and probable floods, with several episodes of levelling and rebuilding. The aim of this paper is to describe and evaluate some of these recent discoveries, offering an updated overview of the ancient town biography, and also trying to solve some of the apparent paradoxes that this unique site raises.

A. M., L. Z.

13.2 Environment and background

A key aspect to understand Spina is its environmental setting, that is the wetland Po Delta landscape. Spina is located in the Upper Adriatic, at the mouth of the Po Valley (fig. 13.1), along a former branch of the main Po River (called 'Po di Spina' or '*padus vetus*'), which was active during the mid-1st millennium BC, some 4 km behind the ancient coastline, at the confluence of a dense network of secondary Apennine streams and waterways (Balista *et al.* 2007). The ancient landscape was characterised by a series of sandspits and deposition bars orientated NNE-SSW, the latest formed during the late 2nd millennium BC (Cremaschi 2017). The area chosen for the main settlement was thus a littoral lagoon, typical of the Po Delta, probably protected by a former barrier island. The proximity of ancient inland swamps and forests with hydrophilic species is also suggested by paleobotanical research (Marchesini and Marvelli 2017).

After antiquity, the environment remained a lagoon for centuries (called 'Valle del Mezzano', and 'Valle Lepri' in its northeastern part), whose water covered (and protected) the archaeological remains. It was eventually drained at the beginning of the 20th century and, more intensively, after the Second World War. The whole area still lies

some 4 m below sea level, due to a silting process of the Po Delta related to marine transgression that had already begun in antiquity (Simeoni and Corbau 2009; Stefani and Vincenzi 2005). An exceptional state of preservation of perishable, archaeological remains was thus granted by the waterlogged condition in both the settlement and cemetery layers.

Before the foundation of Spina in the second half of the 6th century BC, the human presence in this part of the Po Valley appears scattered and poorly documented. During the 2nd millennium BC, according to the known archaeological framework, the Po Delta region seemed to be rather depopulated, and this area remained at the margins of the international trade managed by the hub of Frattesina in the Final Bronze Age (12th – 10th cent. BC) (Bietti Sestieri *et al.* 2018; Pearce this volume).

Only two minor settlements were discovered a few kilometres to the south, in Valle del Mezzano (Podere Alberi) and at Podere Boccagrande (Saronio 1987; 1993). The few trenches opened in the 1980s, although poorly published so far, suggest the presence of two Early Iron Age settlements, built on piles and upon drainage layers made of wooden branches and straw. The square buildings were likely constructed using timber posts and planking, with fireplaces and pit hearths suggesting household activity. A consistent amount of coarse ware and some sherds of fine pottery, along with bronze objects, could be dated between the late 10th and 6th centuries BC. Interestingly, other coarse ceramic sherds and several rectangular clay supporting pillars have been interpreted as evidence of *in situ* salt production (Cattani and Boccuccia 2018), adopting the technique of *briquetage*, *i.e.* extraction from seawater by heating (see an introduction in Harding 2013). If confirmed, this could be the first evidence in the territory of Spina and later Comacchio of long-time salt extraction from seawater, which characterises the Adriatic settlements for centuries to come (Càssola Guida and Montagnari Kokelj 2006; see below). The two dwelling sites were abandoned just before the foundation of Spina, which occurred during the second half of the 6th century BC. However, the social role of the local inhabitants, and the extent to which they were involved in the opening of the new *emporion*, remains unclear.

L. Z.

13.3 The (re)discovery of Spina

Spina was a 'lost city' of antiquity, only remembered by ancient authors for its richness and mythical origin. Since the site abandonment during the 3rd century BC (see below) and its progressive sinking, the actual location of Spina was forgotten for a long time. Before 1922, when the first grave accidentally emerged from the ground during land reclamation in Valle Trebba, historians and antiquarians had disputed its location (Gulletta 2005, 526-533). At that time, the only evidence was based on literary sources despite few and uncertain reports of previous findings (Uggeri 2006, 18). According to the Greek and Roman authors, including Strabo (Strab. 5.1.7), Pliny (*nat*. 3, 120), Dionysius of Halicarnassus (*ant*. 1, 18, 5), and the Pseudo Skylax (Skyl. 17), Spina was founded in a mythical past before the Trojan war, by the hero Diomedes or perhaps the Pelasgians (Briquel 1984, 3-30, 55-81; Gulletta 2005, 526-533).

Although the narrative of a mythical foundation could be easily explained by later (*i.e.* Classic or Hellenistic) propaganda, aimed at strengthening bonds with the Greek sphere of influence (Cristofani 1996), the ancient texts give us other information about the location and the historical perception of Spina. Strabo and Pseudo-Skylax wrote that Spina lies on a navigable creek of the Po River, close to the seashore, but they both provide different indications on the distance to the sea. While Pseudo-Skylax, who allegedly lived in the 4th century BC, reported a distance of 20 *stadia* (thus around 3.7 km from the sea), Strabo wrote in Augustan times that is was a distance of about 90 *stadia* (some 16.7 km). This discrepancy could be explained by the area undergoing geological processes, including river diversions and delta progradation, which occurred during the second half of the 1st millennium BC (Balista *et al.* 2007).

The second point is that the ancient sources labelled Spina as "*polis hellenis*" (Skyl., 17), a 'greek city' of unusual wealth and power. Spina was even believed to have founded a "*thesaurós*", a treasury, in the Panhellenic sanctuary of Delphi (Strabo, 5. 1. 7; Plin., *nat*., 3. 120; Strabo 9. 3. 8), the only pre-Roman city, along with Cerveteri, to which such an honour was granted. In the final paragraph of this paper we try to better contextualise this ethnic and cultural external perception.

While the cemeteries were discovered in 1922 and excavated until the 1950s, the settlement area was accidentally discovered only in the early 1960s, during land reclamation works in the upper part of the Mezzano Valley (so-called 'Valle Lepri'). The excavations in the settlement continued for decades afterwards, until 1988. Unfortunately, the 1960s and 1970s excavations were conducted without proper stratigraphic methods and remained largely unpublished until recent times (Zamboni 2016a; 2016b). New investigation in the settlement area began again in 2007, with geophysical surveys and excavation trenches being conducted by the local Soprintendenza and the Universities of Zurich and Milano, and with the collaboration of several other institutional partners until 2017 (an overview in Reusser 2017a).

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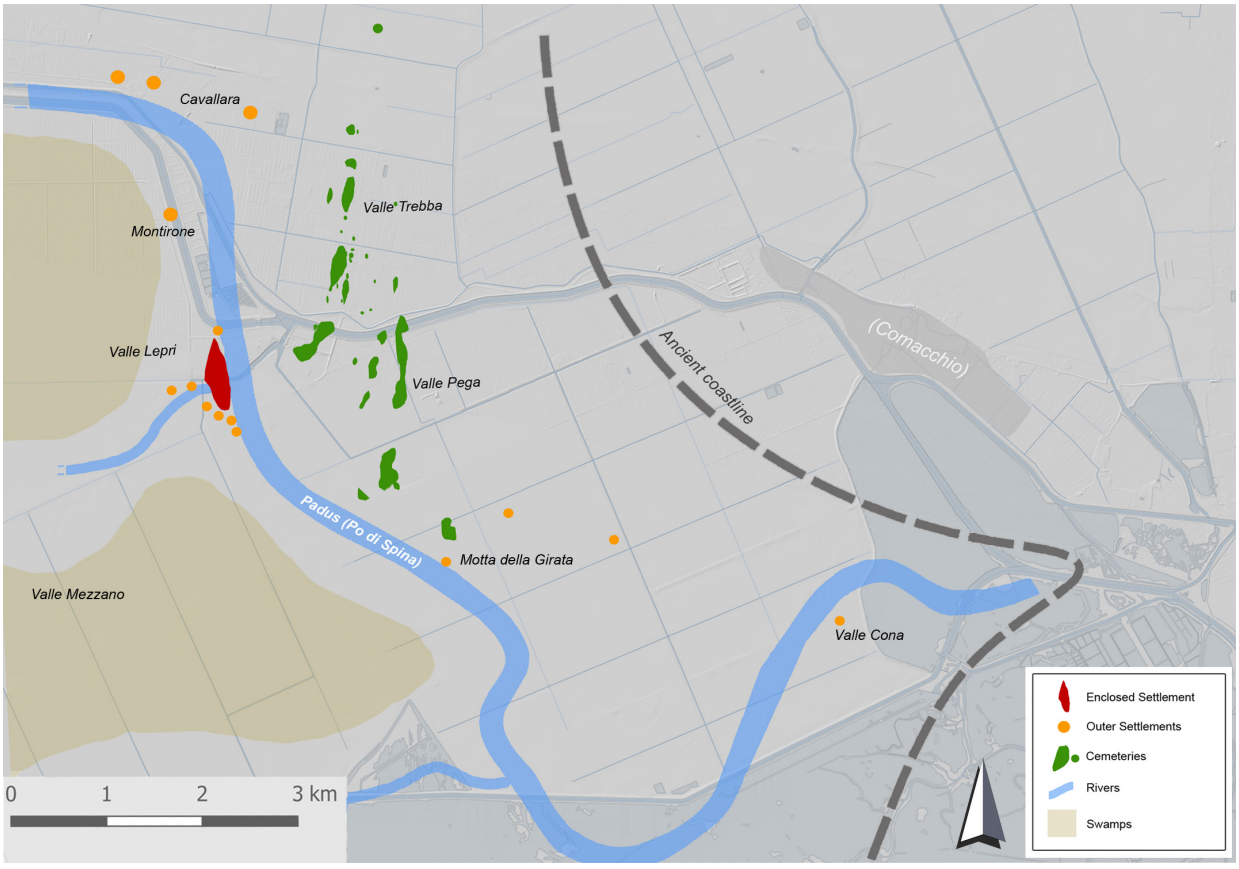

Figure 13.2. The territory of Spina between the 6th and 4th centuries BC (L. Zamboni; GIS-based DTM 5x5 P. Rondini).

13.4 Site layout

The ancient landscape of Spina is marked, as already put forward, by the presence of a major body of water, an ancient coastal branch of the Po River flowing north-south before entering the Adriatic Sea a few kilometres to the east (fig. 13.2).

13.4.1 The Cemeteries

The cemeteries of Spina were placed on the left side of the ancient river, upon the sandbanks in front of the seashore[2] (fig. 13.2). Here, more than 4,000 excavated graves have yielded one of the richest collections of Greek red-figured vases, found *in situ*, from antiquity (Vickers 2017), along with splendid bronzes and luxury objects, including glass, amber, and wooden furniture (Berti and Harari 2004). The number of robbed graves, however, is countless (only during a few months during the winter of 1955/56, for example, more than 200 graves were looted, Desantis 2017, 89).

The graveyard layout was arranged on several larger and smaller sandbanks, NE-SW orientated (labelled with the modern names of Valle Trebba to the north, and Valle Pega to the south), divided and connected by a system of water canals, some of which were artificial and reinforced by piles and wooden fences (Romagnoli 2017). Recent analysis has highlighted the presence of low tumuli and clusters of graves (Desantis 2017; Gaucci 2015), possibly linked to kinship or other social subgroups (Govi 2017). The funerary rite was bi-ritual, with a higher percentage of inhumations, and several graves were furnished with large wooden chambers (averaging between 2 and 2.75 m in length and 1.65/1.90 m in width), or timber planking, both in inhumations and cremations (Berti and Guzzo 1993). The presence of wooden *klinai*, 'cradles', and other wooden furniture inside the graves is also attested (Desantis 2017).

2 The geological formation of these sandbanks is of uncertain chronology, but can be reasonably placed towards the end of the Final Bronze Age, around the 10th century BC (Balista *et al.* 2007; Cremaschi 2017).

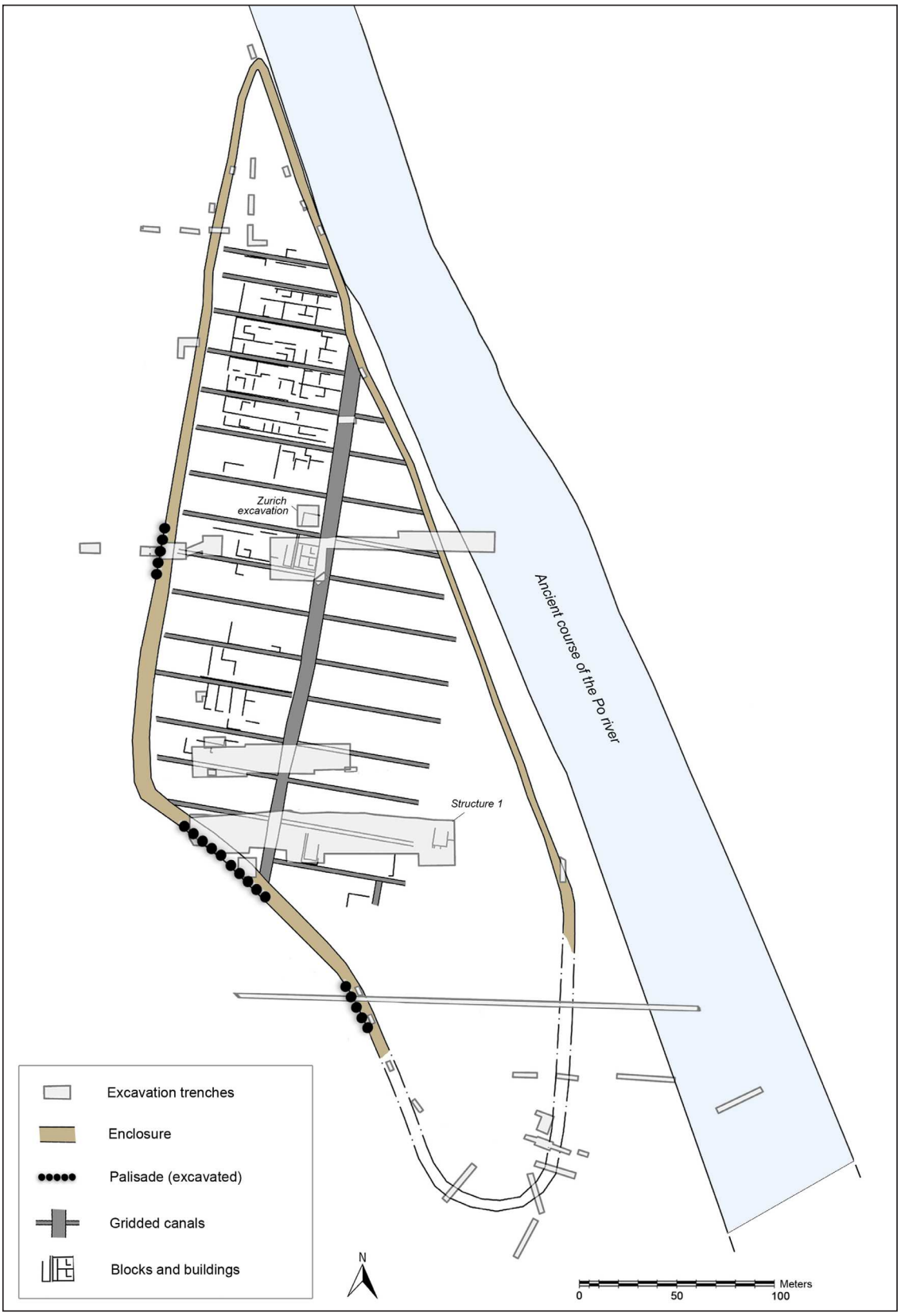

Figure 13.3. The enclosed settlement of Spina (L. Zamboni).

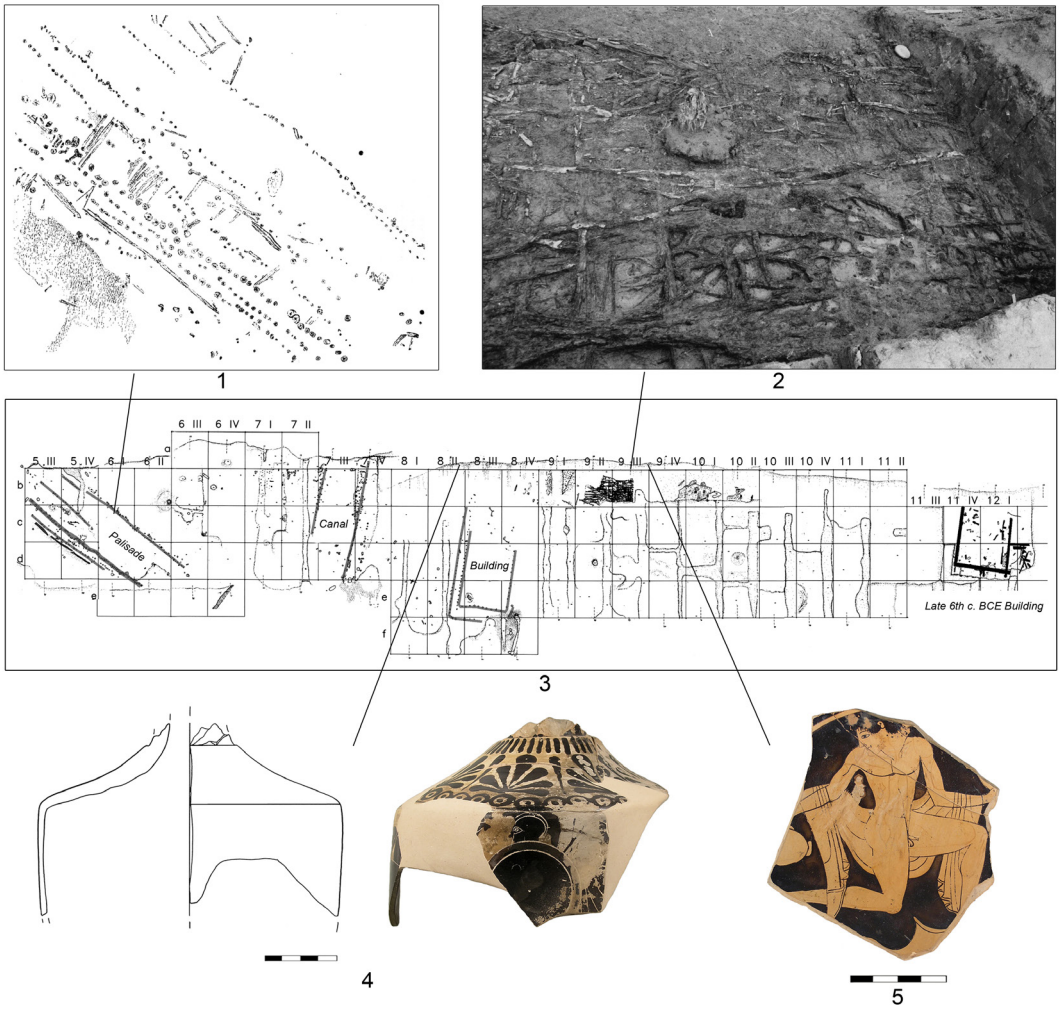

Figure 13.4. 1. The palisade, western sector; 2. Bundles of the settlement foundation; 3. Excavation sector south of the Collettore Mezzano; 4-5. Black- and red-figured pottery from the foundation layers (modified after Zamboni 2016a).

13.4.2 The settlement

On the opposite side of the ancient *Padus* lies the main settlement, developed along the river course and placed on a small raised riverbank[3] (fig. 13.2). The settlement size, as revealed by exploration trenches and geophysical surveys (Izzet 2010; Reusser 2017b), is around 6 ha in total (fig. 13.3).

The shape is elongated, and the town planning is regular with a NNE-SSW orientation. Instead of a grid of streets, known in other contemporary towns with a regular plan (*e.g.* Marzabotto: Govi *et al.* this volume), the urban layout of Spina is characterised by an orthogonal grid of larger and smaller canals. The main axis is a wide artificial water canal, some 10-12 m in width and at least 280 m in length, running NNE-SSW. The presence of a second main canal, running parallel to the east, is only suggested as no trenches have been opened to date in the eastern part of the site. The main NNE-SSW canal is crossed by a series of perpendicular minor canals, each 3 to 4 m wide and some 70 m long.

The nature of these canals is not yet completely clarified. It is usually assumed that they were artificial waterways, for water management and conveyance. Yet we may wonder if they were constantly filled with

3 Mauro Cremaschi (2017) has nevertheless suggested a slightly different scenario (at least regarding the southern sector): the first settlement stage would have been on piles and massive planking, inside a submerged lagoon area and defined by canals and drainage works. Only after the ingression of the *Padus* River, would the town have been rebuilt upon the newly formed riverbanks. This time, piles, planking, and palisades would have been used to prevent flooding and embarking the fluvial deposits. Further geoarchaeological data are needed to evaluate or make a synthesis of the two hypotheses. The crucial point here is the dating of the *Padus* River ingression: whether before the 6th century BC, as in the traditional scenario, or at some point during the 4th century BC, as suggested by Cremaschi.

water throughout the year and somehow navigable with small dugouts (like in Medieval and modern towns, such as Venice or the nearby Comacchio), or perhaps if there was a regulation system, with a type of locks system. In the latter case, the canals could at times be empty, or maintained with low water levels, and filled in case of necessity, such as flooding or high water, preventing the overflows of houses and working areas. The presence of timber planking and of rows of posts across some of the larger canals should also be better explained (bridges, raised walkways, locks? See also a discussion in Cappuccini and Mohr 2017).

However, this grid of major canals defines several rectangular blocks, or *insulae* (the basic urban units), the largest of them 70 m long and 17 m wide, which are subdivided into lots of square houses of regular dimensions (Zamboni 2017a). Inside these blocks, other smaller canals connected to the urban grid separated the singles buildings from each other, surrounding the houses on three sides (fig. 13.5.1; see also fig. 13.9.1).

The buildings are also planned with regular modules. The basic household unit was of rectangular shape, 17 m long and 10 m wide (fig. 13.5.1). Inside the main block there are rooms and internal spaces for household and domestic activity, with a certain degree of variability for each building, as revealed by recent excavations (2007-2017). Usually, on the eastern side of the main building, a smaller block is reserved for external and working activities, including small-scale productive structures.

13.4.3 The enclosure

The settlement was surrounded by a large timber palisade and a ditch and moat system (fig. 13.3 and 13.4.1), at least along the western and southern sides (where more extensive explorations have been carried out). This defensive system was made of a wooden palisade with six to eight rows of large and smaller posts, and a ditch-and-moat structure in front of the palisade, aimed at protecting the town from (frequent) floods and marine ingressions (Cremaschi 2017). However, since no excavation reached the lower strata of the palisade so far, it remains unclear if the defensive system enclosed Spina from the foundation, or if it was rather built during later periods, after episodes of flooding, or even following some military attacks occurring during the 4th century BC (see below).

In more general terms, the settlement layout of Spina is not isolated in the context of northern Italy. The elongated shape along a water body, enclosed by a palisade and moat, the grid of canals, the rectangular urban units with regular square buildings, along with the extensive use of timber and perishable materials, are characteristics that we find in other *emporia* of the eastern and central Po Valley, such as at Forcello (Komp *et al.* this volume) and Adria (Bonomi *et al.* this volume).

13.4.4 The hinterland

The very presence of a hinterland for Spina remains a debated issue, due to the scarcity of data from recent large-scale surveys and geophysical investigations outside the central inhabited area. Previous research reported several secondary sites and spots with surface finds throughout the vicinity of the settlement area, mainly along ancient waterways (Uggeri 2006) (fig. 13.2). However, the extension and the nature of these minor sites are unclear. The dispersion radius is within 2 km in all directions (the northernmost site is Cavallara, where scattered bronzes were found, Cornelio Cassai *et al.* 2013b, 7; Cristofani 1996, 165). At first glance, the majority of pottery is dated to the later stages of Spina (4th-early 3rd centuries BC), suggesting a moderate expansion of the site in this period, with likely production activities and scattered hamlets. The easternmost materials are reported near Motta della Girata (Balista and Berti 2017) and in Valle Cona (Cornelio Cassai *et al.* 2013b), along the ancient mouth of the Po River and the Adriatic Coast, where the presence of a seaport or landing has been supposed (fig. 13.2).

More distant, along the ancient Po River course heading west-northwest, few findings are reported, including pottery waste near Voghiera (Patitucci Uggeri 1979) (fig. 13.1). The distance, in a straight line, between Spina and nearer ancient towns is 40 km to Adria, following the ancient coastline northward, and 64 km with Bologna to the southwest, probably following the Reno River or other watercourses[4].

L. Z.

13.5 Settlement foundation (late 6th century BC)

The lower layers of the Spina settlement, lying some 4/5 m below the present-day surface, have not been extensively excavated. Under the foundation layers of earlier buildings, dated to the second half of the 6th century BC (around 530 BC), a few trenches have revealed how the substrate was drained and made more stable thanks to massive works (fig. 13.4.2). A series of planking, bundles, and logs, interspersed sometimes by layers of clay, have been documented (Zamboni 2016a). In a later stage (5th century BC), a different system of interlocking and crossing sleeping beams was necessary to stabilise the foundations of a residential building (Reusser 2017b).

The early buildings of the late 6th century BC are directly superimposed upon the drainage layers. The best-known example of the early stage, timber, rectangular houses is the so-called 'Structure 1' (Struttura 1), a portion of a house dating to the Late Archaic period (Zamboni 2016a).

4 In the 1920s along this route, near Trava, 7 km northeast of Argenta, the accidental discovery of an ancient wreck loaded with Greek pottery was reported (Negrioli 1924, 280). Unfortunately, this outstanding context wasn't excavated and thus has disappeared.

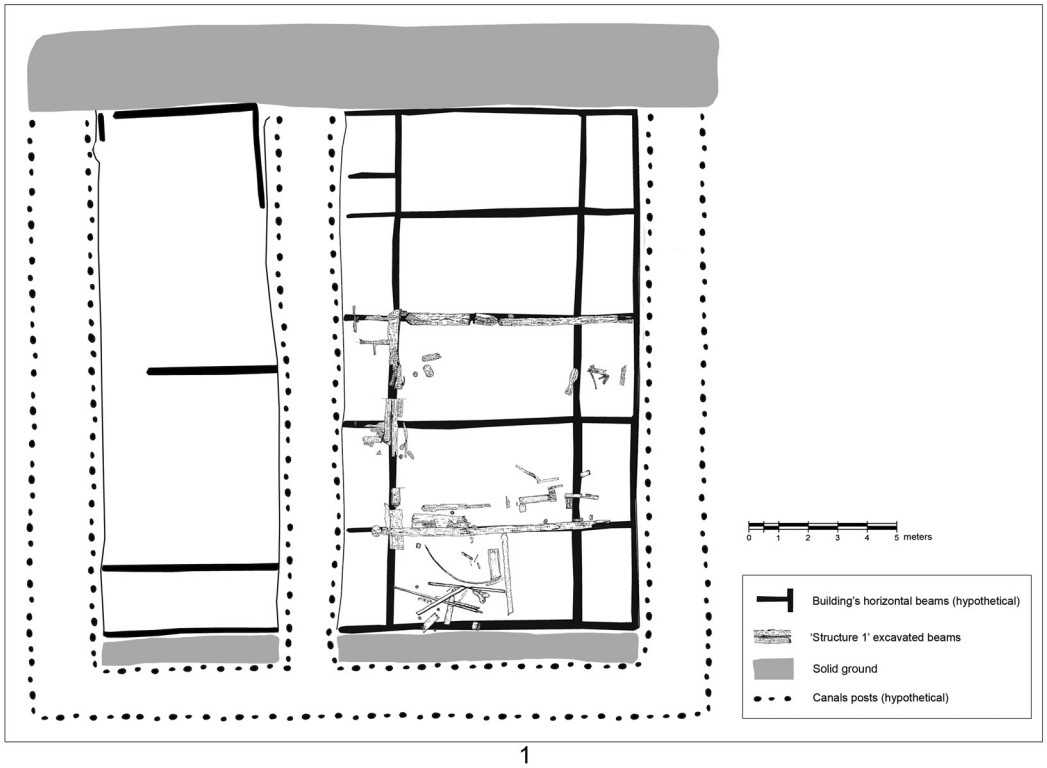

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Figure 13.5. 1. Hypothetical reconstruction of a late 6th century BC building, overlapping the excavated 'Structure 1' in Spina with the Late Archaic house of Forcello (elaboration L. Zamboni); 2. Spina, 'Structure 1', details of interlocking beams.

The southern part of a building was excavated in the 1970s and early 1980s (sectors 11/12, south of the Collettore Mezzano), displaying a good state of preservation of timber and perishable elements.

The plan of this building is rectangular, NNE-SSW orientated, with a central room of nearly 60 m^2 and flanked by smaller rooms (fig. 13.5.1). The distribution of finds suggests that inside these rooms different daily activities took place, including cooking and heating, weaving (the burnt remains of a vertical weaving loom were discovered in the southeastern corner), and the storage of wine and oil *amphorae* (Zamboni 2016a). The 'Structure 1' household burned and collapsed before the end of the 6th century BC, according to the finds' dating. Amongst the latter is a noteworthy presence of a high percentage of late black-figured Attic pottery, fragments of Corinthian small vessels and Greek-eastern painted pottery, as well as Greek *amphorae* and *pithoi* (large imported storage vessels, known in Mediterranean shipwrecks and also in Adria and Pisa), and locally produced 'bucchero' (black burnished, often grey-cored) wares (Zamboni 2017a).

The building technique of this early period includes horizontal beams, with crossing beams and outside posts at the corner of the building, as well as tongue-and-groove linking (fig. 13.5.2). The species most commonly used in buildings were *Quercus robur* (European oak), and to a lesser extent, elm (Marchesini and Marvelli 2017). However, only two or three rows of timber beams are preserved, so it remains unclear if the entire walls were made of timber, like in the baulk-wall architecture and the log houses tradition. As an alternative solution, a large part of the upper walls was made with wattle and daub,

Figure 13.6. 1. Media of exchange from the settlement of Spina: stone weights with numeral inscription and *aes rude* (after Zamboni 2016a); 2-8. Examples of imported goods (after Buoite and Zamboni 2017; Zamboni 2016a).

or occasionally with mudbricks. In later periods (5th and 4th centuries BC) the lower part of the foundation beams was protected by plaster slabs (see below), a solution also documented in Adria (Bonomi *et al*. this volume). As there is no evidence of tile roofs in Spina until the later phases (4th and early 3rd centuries BC), it should be assumed that the roofs were made of thatched reeds, straw, and other perishable materials, eventually fastened at the top by a single row of ridge tiles.

L. Z.

13.6 The flourishing of Spina (5th century BC)

At the height of its wealth, goods from all over the Mediterranean arrived in Spina. Wine, oil, luxury items, as well as (reasonably) cheap, fine pottery from Greece, ointments and perfumes from Rhodes and the Near East, amber from the Baltic, and building materials from the neighbouring areas. The scale of the town's commercial activity is provided by the number and variety of imported products found both in grave assemblages and inside the households. Wine stands as a preeminent good, transported in *amphorae* and consumed adopting the entire set of Greek-style drinking vessels. For nearly two centuries Athens and her commercial partners supplied the Po Valley and, to a minor extent, the Alpine regions, with refined wine and the accompanying drinking pots, such as figured and black-glazed pottery.

Other exotic products include oil, unguents, perfumes, spices, and different wines that came from the Aegean, eastern Greece, and Egypt, as suggested by the presence of characteristic vessels and *amphorae* typologies (Desantis 2013; Sacchetti 2012; Sciortino 2012), in addition to glass and alabaster *unguentaria* (fig. 13.6.8). Imported from the Baltic regions for centuries (Pearce this volume; Rondini and Zamboni this volume), raw, semi-worked, or finished Baltic amber continued to adorn local dress (fig. 13.6.7).

Greek and Oriental marble arrived in smaller quantities, while volcanic rock was used for millstones, widespread inside households. Local stone, quarried from the Apennines and Alpine regions, was used for building activities (mainly in later periods) and for stone weights as well as other daily tools.

Also noteworthy is the presence in Spina of the complete set of Greek-style cooking ware (*kados*, *chytra*, *kakkabe*, *lopas*, and *mortarium*), coexisting with the local wheel-turned and handmade impasto *ollae* and pots, testifying to an ongoing process of hybridisation of culinary practices within the social space of the kitchen (Mistireki 2019; Zamboni 2017b) (fig. 13.6.4). In exchange, Spina offered an abundance of trade goods, including cereals, meat, salt, and craft materials. Exports consisted mainly of agricultural products, including cereals, in particular wheat, that was cultivated throughout the region. The Po Valley was indeed one of the 'granaries' of the Classical world, an alternative to Egypt or Sicily from a macroscale economic perspective.

The agricultural production and consumption in Spina were in fact of remarkable quality. Palaeobotanical analysis has documented in the settlement area the presence of chard, lettuce, fennel, dill, carrot, parsnip, and even melon (see Marchesini and Marvelli 2017) amongst the vegetables. The daily diet also provided barley, soft wheat, spelt, millet, legumes, beans, peas, chickpeas, lentils, and aromatic plants such as rosemary, sage, and mint. Nuts and fruit are also attested (hazelnuts, walnuts, pine nuts, cherries, grapes, plums) as is the local cultivation of olive trees and vines (Marchesini and Marvelli 2017, 50).

Moreover, the plain and nearby forests provided reeds, skins, animal bone, and meat, especially of pigs, as well as fishing opportunities (Briccola *et al.* 2013). The availability of stallions and foal-breeding from the near Veneto region, highly appreciated by the Greek upper classes, may have also played a significant role in the development and growth of the northern Adriatic *emporia* (Vickers 2017), albeit this is a category of evidence poorly visible from both an archaeological and archaeozoological point of view. On the other hand, one may wonder whether the northernmost hub of Adria had the monopoly for that trade, or if Spina was able to carve out a slice of the market.

Another well-documented craft activity in Spina is pottery production. Several potter's workshops were active inside and along the towns' margins, and able to supply the households with thousands of fine and impasto pots, with shapes often influenced by the flow of Greek imports (Zamboni 2016a; 2018). To what extend this pottery production may have served a regional market beyond the domestic demand however remains a subject of debate. Manufacturing traces consist of production waste and kiln tools (Zamboni and Buoite 2017), as well as figure stamps and scratched letters used as trademarks. Carpentry, basketry, and textiles likely also played a role in the local economy (some examples of basketry and wooden small objects are in Zamboni 2016a, 228-229).

Salt, extracted from seawater, was fundamental in farming and in the dairy industry, for food preservation and the dyeing of clothes. In addition, it is also likely that weighted salt measures were part of the basis of the local trade system. Some ancient authors also mention another aspect of commerce for Spina, that is slavery, which leaves few or nearly invisible archaeological traces.

Despite this thriving economy, coinage was never adopted in Spina (Gorini 2017). Exchange and transactions took place with different methods of payments. Recent studies have underlined the coexistence of a sophisticated form of bartering, with a complex system of weights derived from a long-term tradition in the Po Valley (Zamboni in press), along with the use of proto-currencies or 'token-

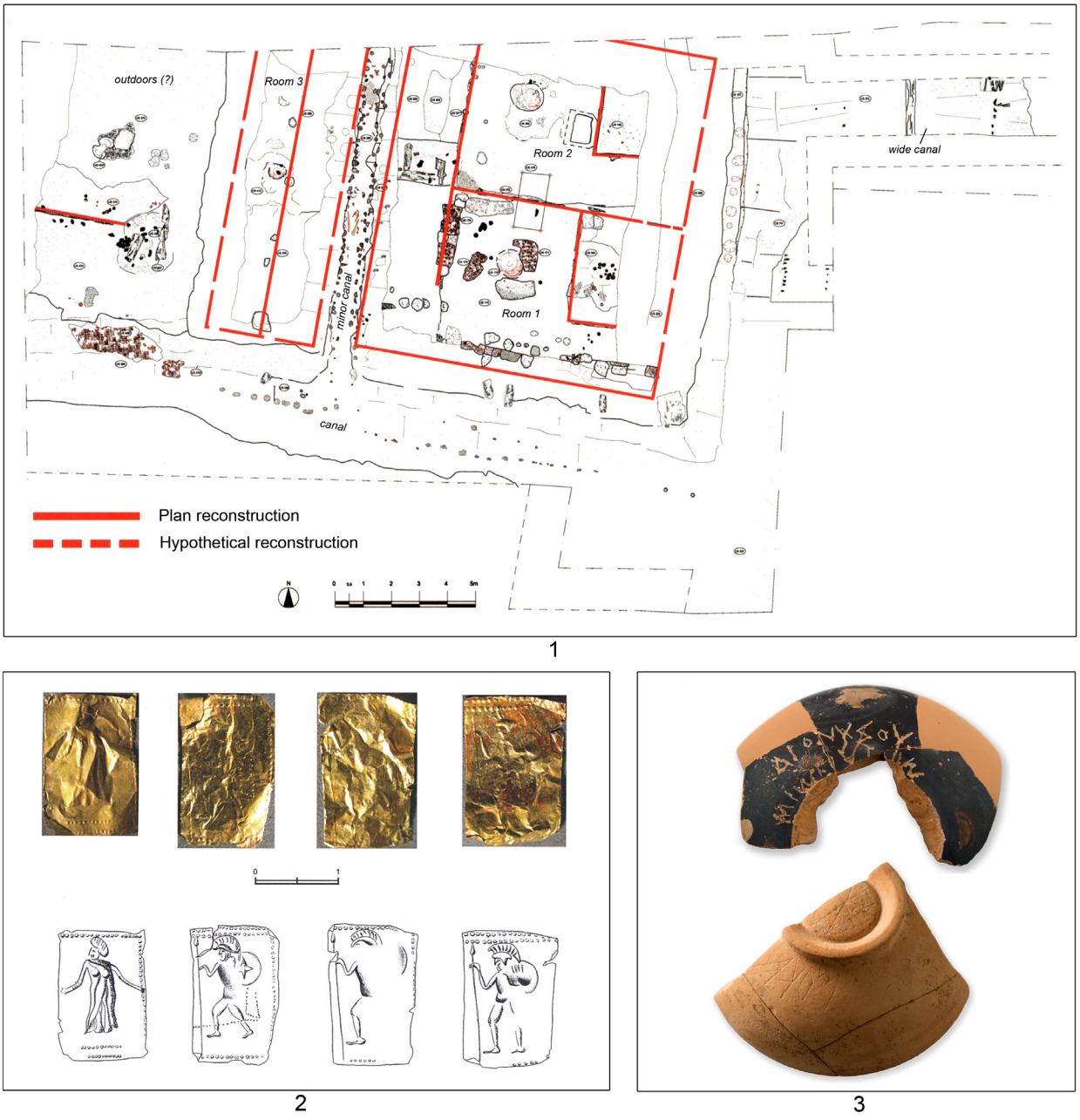

Figure 13.7. 1. A 4th century BC square building; 2. Small golden plaques (modified after Cornelio *et al.* 2017); 3. Selection of inscribed black glazed and '*etrusco padana*' sherds (modified after Buoite and Zamboni 2017).

money' (bronze ingot lumps or *aes rude*) (fig. 13.6.1). As suggested by Vickers (2017), the presence of 'utensil-money' in Spina is also likely, for example silver and other prestige goods, while imported Attic pottery has been interpreted as a by-product, a surplus that served as space-filler in large ship cargoes (*ibid.*, 124) (see also fig. 13.6.3 for an example of a numeral graffito, likely the pots' prize). According to this view, the amount of pottery buried in graves would thus be worth seeing as 'distinguished-looking, but comparatively cheap ceramic surrogates of the Attic silver vessels with which real trade was conducted' (*ibid.*, 123).

The weights commonly used in the Po Valley for trading were composed of bronze, lead, or stone. Several stone weights from the Spina settlement are inscribed with numbers, interpreted as weight units. The Spineti thus employed several weighing standards, some close to the weight standards suggested for the Etruscan and Etruscanised world, such as a light libra of 287 g, and a heavy one of 358 g (according to Maggiani 2009). These different systems for weighing and

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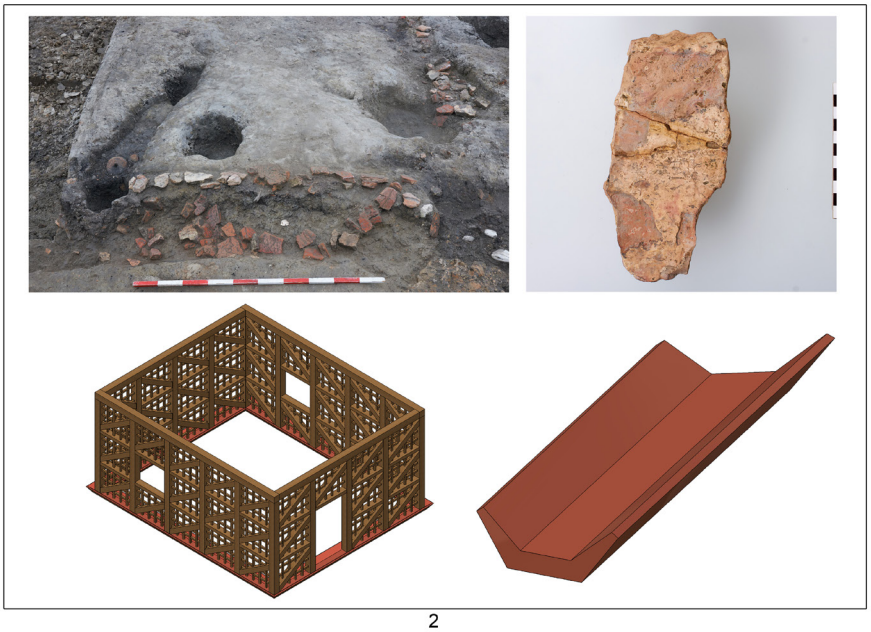

2

Figure 13.8. 1. Square building, Zurich excavation; 2. Terracotta plaster, reconstruction (Zürcher Spina-Grabung, elaboration A. Mistireki).

regulating trade that coexisted in Spina are further evidence of its wide commercial and cultural links.

Rough portions of bronze ingots (*aes rude*) were also used for transactions as proto-currency, as well as rectangular pieces of sheet metal. Their use is attested in other contemporary trading cities in northern Italy, such as Marzabotto, Forcello, Oppeano, and Ponte S. Marco near Bergamo (Zamboni in press).

L. Z.

13.7 The 4th century BC

The historical framework in northern Italy abruptly changed at the beginning of the 4th century BC, with the Gallic 'invasion' of 388 BC, as described by historical sources (Vitali 2014), and the decline of many Etruscan towns, including Marzabotto and *Felsina* (Malnati *et al.* 2016; Morpurgo 2016).

Spina somehow survived the general crisis, showing substantial continuity both in the cemeteries and settlement

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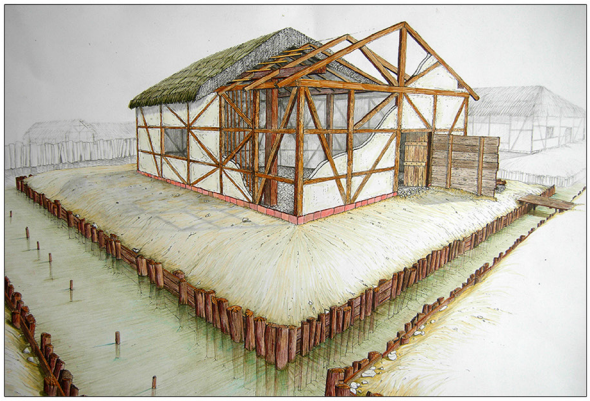

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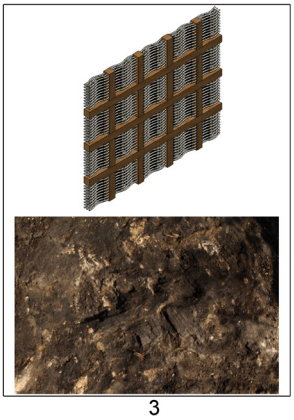

3

Figure 13.9. 1. The 4th century BC Square House after excavation (after Cappuccini and Mohr 2017); 2. Reconstruction of the square house (after Cappuccini and Mohr 2017); 3- Reconstruction of the walls, and part of wall *in situ* (Zürcher Spina-Grabung, elaboration A. Mistireki).

layers. The trade patterns, however, progressively changed after the decline of Athens' maritime empire, and by that point Spina had turned its sight to central Italy and the Adriatic regions.

The excavations during the 1960s and 1970s in the settlement area brought to light several 4th century BC records, including the filling of several ditches and canals (Patitucci and Uggeri 2017, 214-218; Zamboni 2016a) and evidence of artisanal activity inside and outside the town's perimeter (Zamboni and Buoite 2017). Additionally, in the 1980s a building was discovered in the south-central sector (Desantis 1993). Recent investigations provided more substantial data regarding both the enclosure (Cremaschi 2017; Buoite *et al.* in press; see below) as well as the households and their relative buildings (Cappuccini and Mohr 2017, 21-26; Cornelio Cassai *et al.* 2013b; Mistireki in press; Reusser *et al.* 2011).

As already mentioned, no major changes are visible in the town layout after the end of the 5th century BC. It is only in the later stage, during the late 4th and early 3rd century BC, that the settlement layout was partially redesigned. The continuity with the previous layout is testified, for example, by the excavation of a sector in the central part of the settlement (Cornelio *et al.* 2017). Here most of an *insula* has been documented, bordered by large and small water canals (fig. 13.7.1): the main canal is north-south orientated, up to 11-12 m wide, and crossing a smaller canal of 4 m width. The canals are filled with thousands of artefacts, mainly pottery, dated from the late 5th to the early 3rd century BC.

This system of water canals surrounded a main building consisting of two rooms ('Room 1' and 'Room 2') and a corridor in front of them (fig. 13.7.1). Additionally, part of a second building was identified to the west ('Room 3'). The latter is separated from the main building by a small canal, 1 m width. Further to the west an open space was located, which has been interpreted as an artisanal area.

Several occupation layers were identified, dating from the end of the late 5th to the end of the 4th century BC (Cornelio Cassai *et al.* 2013b, 15-29; Cornelio *et al.* 2017, 31-32). The end of the occupation is marked by a thick

Figure 13.10. Oven *in situ* and reconstruction (Zürcher Spina-Grabung, elaboration A. Mistireki).

destruction layer with burnt debris and many clay missiles (see below). Next to usual domestic finds, such as fine and coarse pottery, some metal objects and a quantity of zoological and botanical remains were recovered (Briccola *et al.* 2013; Buoite *et al.* 2017). It is worth mentioning the discovery of four small gold plaques. These plaques, with a female figure and three warriors (fig. 13.7.2), were buried in a shallow pit under the house flooring, and could belong to a small wooden box, which was not preserved.

13.7.1 The Zurich excavation

A consistent picture emerged a few metres to the north, thanks to an excavation project by the University of Zurich. In this sector, at least 15 occupation layers have been documented, each layer separated from the other by artificial/alluvial sediments (Reusser 2016, 114). The main features discovered (six layers) belong to the remains of a building and its surrounding area, including evidence of artisanal activity. Two of these settlement layers, the so-called 'period IX' and 'period XI', are dated to the 4th century BC.

These buildings are situated in the southern part of an *insula*, which is surrounded by at least three canals (Cappuccini and Mohr 2017; Reusser 2017b). The north and west canals, partly excavated, show the use of two rows of postholes (in a good state of preservation) along the sidewalls, as well as a middle row in the northern canal.

The wooden posts are slightly displaced from each other, and timber planks were horizontally stacked in between. The detailed excavation of the canal walls suggests that to fix the whole structure the posts and the planks were intentionally backfilled with river pebbles and ceramic debris. Two fillings, dating between the end of the 5th and the beginning of the 3rd century BC, revealed thousands of artefacts (Cappuccini and Mohr 2017).

'Period IX' represents the latest residential use of the area, consisting of five phases, from the construction to the destruction of the building, the so-called *casa quadrata* (square house). The foundation of this structure can be roughly dated to the mid-4th century BC (Cappuccini and Mohr 2017, 21). Fortunately, the destruction layer was covered by a thick layer of clay immediately after the collapse of the building, and, therefore, the deposit was sealed with the whole inventory preserved.

In the lower part of the building, the foundation layer and parts of the rising walls were documented. The building occupies an area of approximately 42 m^2. It consists of the remains of an almost square (5.8 per 6.9 m) structure with timber framing and without clear evidence of any inner subdivision (fig. 13.8.1). The postholes on each side of the building showed no traces

Figure 13.11. Selection of 4th century BC findings from the Square House (Zürcher Spina-Grabung, elaboration A. Mistireki).

of wood, whereas the sleeper beams have been preserved due to carbonisation.

A construction detail refers to the lower part of the sleeper beams, where a remarkable number of terracotta-plaster was found (fig. 13.8.2). These fragments show three different shapes: flat and tapering wall fragments, as well as flat bottoms. A hypothetical reconstruction supposes that the terracotta plaster served as protection against water and moisture (Mistireki in press). The walls were built using the wattle-and-daub technique, as testified by the large amount of burned daub, which shows various impressions of branches (fig. 13.9.3). As no roof tiles have been discovered, the roof is supposed to have been made from decomposable materials, like reed or straw (Reusser *et al.* 2011). According to a preliminary reconstruction, a two-story building with a raised floor could be inferred by the rather small habitable surface and the high number of finds. Four inner posts alongside the northern and southern sleeper beams support this hypothesis (fig. 13.8.1 and 13.9.2).

The daily activities inside the building left several traces, including a furnace and imprints of various elements of perishable furniture. The large amount of loom weights suggests the presence of a vertical loom (Reusser *et al.* 2011). The textile production is further confirmed by other objects, such as spindle whorls, thread reels, and *epinetra* (Mistireki 2020).

The rectangular furnace is rather atypical (fig. 13.10), as it appears too small for any kind of ceramic production and not properly convenient for cooking activities. Therefore, it is suggested that it was used as a heat source during cold periods. It certainly also helped with the high humidity that even today can be felt in this marshy landscape. Moreover, casts, slags, *tuyères*, and the remains of a blacksmith's pit on the western forecourt of the building indicate further craft production. As there were even several fragments attached to one blob of slag, it is very likely that smelting took place close to the building. Other crafts are evidenced by unfinished goods, such as bronze fibulae and golden earrings (Mistireki 2020, 69-70).

Concerning other categories of artefacts, a wide spectrum of coarse ware and a large amount of imported ceramics are attested (fig. 13.11). The variety and quality of Attic vases are comparable to the grave goods from the cemeteries. Among more than 17,000 single finds, 14,736 of them are pottery sherds. In a thorough study (Mistireki in press) all the findings have been categorised by their function (namely, cooking, eating, storage, privacy/toiletry, artisanry, and unknown), independently from their raw material and find category. The function of cooking and eating comprises everything used to prepare, present, or consume food, such as cooking pots, plates, jugs, and drinking cups. Under 'storage' *ollae*, *dolia*, and

amphorae are mostly listed. The 'privacy' sphere is represented by objects for personal toiletry, such as *aryballoi*, or jewellery, such as rings or fibulae. The 'artisanry' domain has already been mentioned (textile production, metallurgy, or similar). Of course, several objects could serve more than one purpose like the *lekythoi* for example, containers for oil used both for cooking and for personal hygiene (Lynch 2011, 140).

Overall, a high concentration of artefacts characterises the relatively small buildings of Spina (consider, for example, a total of 1021 single vessels from the 'period IX' destruction layer alone). The role of storage inside ancient habitations, like the Spina square house, should certainly be highlighted, as well as the scarcity of comparable contexts from the 4th century BC (see comparable evidence from the Dema- and Varihouse, Jones *et al.* 1962; Jones *et al.* 1973).

A. M.

13.8 The 'fall' (mid-4th century BC) and later evidence

The destruction layers discovered in recent excavations at the settlement of Spina, both in the 'period IX' building and in the southern sector, are marked by the presence of a sizeable amount of charcoal, burnt artefacts and daub rubble, and a large number of clay bullets. These missiles, found elsewhere in Spina (Buoite *et al.* in press), could be related to a military attack that caused the end of the building (Cappuccini and Mohr 2017, 23). An act of war related to the end of the Etruscan Po Valley, specifically relating to Spina, is actually mentioned by Diodorus Siculus (Diod. 14, 113, 1-2), yet the scale of the assault, and the historical 'ethnic' groups involved remain a matter of debate.

However, even after the mid-4th century BC attack, Spina survived for some decades, although with significant changes in its role and function. The latest dated use of the settlement area, as revealed by the Zurich excavation trenches ('period VII'), is in fact associated with salt extraction (Reusser 2016, 120-123; 2017b, 11-19; Reusser *et al.* 2011, 118-119).

In the southwestern part of the *insula* the foundation walls of a small shelter have been documented. The remaining area was covered with several hundred kilograms of terracotta fragments, which seem to belong to basins on cylindrical clay supports, thus suggesting a known technique for prehistoric salt extraction process (Harding 2013). Several small canals presumably served for the water supply, while the aforementioned north and west canals surrounding the *insula*, were not in use anymore. They were filled up and covered by a silty layer, which serves as the ground floor for the salt basins (Reusser 2017b, 14-18).

The terracotta fragments, remains of the *briquetage* process (see Harding 2013), often show traces of cord-decoration. The rims are finished by fingertip impressions and some also show traces of red slip. Other terracotta objects with a cylindrical shape and flat base can be identified as supports (Reusser 2017b, 16 pl. 5c-e). Despite a lack of many significant finds, the 'period VII' can be approximately dated to around 300 BC (Reusser 2017b, 13 with reference 22). In other excavation sectors, different later structures have been found immediately over the destruction layer with clay missiles (Cornelio Cassai *et al.* 2013b), in some cases associated with roof tiles (Patitucci and Uggeri 2017).

At some time during the 3rd century BC, not yet specified, Spina was completely abandoned. To date, a chronological gap between the abandonment of the settlement and the later grave goods has been proposed (Malnati *et al.* 2016), although it is mainly based on unpublished materials that need a more thorough analysis. A later human presence on the site is related to Roman rural *villae* in the surroundings, and to Late Roman scattered finds (Cornelio Cassai *et al.* 2013b), yet without any hint of continuity with Classical and Hellenistic Spina.

A. M.

13.9 Overview and conclusion

Spina represents a remarkable example of an *emporion* (Gailledrat *et al.* 2018) that flourished for a few generations and then suddenly disappeared. As already described, the settlement was newly founded during the second half of the 6th century BC at the head of the Adriatic and the mouth of the Po River. The reasons behind this choice are numerous. On the one hand, the 6th century BC was a period of expanding and 'globalising' Mediterranean trade (Sherratt 2016), and the western upper coast of the Adriatic represented a natural corridor towards northern Italy and Central Europe. It was an alternative to the Tyrrhenian network and the westernmost Rhone route controlled by the Greek settlers in Marseilles and the Western Mediterranean (Malnati 2004). From this perspective, Spina seems to have inherited the role and effective position inside a trade network that centuries before, during the Late Bronze Age, belonged to Frattesina (Pearce this volume), and in the first part of the 1st millennium BC was taken over by Verucchio (Rondini and Zamboni this volume).

Moreover, the site was strategically placed inside a wetland environment rich in natural resources and crossed by several navigable waterways. On the other hand, the environmental setting appears rather unstable, and required extensive drainage works and specialised building techniques. With these characteristics, for almost 150 years, between the late 6th and the mid-4th century BC, Spina was a crossroads for international trade, a seaport where natural resources and raw materials (salt, metal, amber), agricultural products (grain, breeding, even the 'chariot horses' from the Veneto region, according to Vickers 2017), probably slaves, and artefacts (Etruscan-style bronzes, wooden, and other perishable

manufactured goods) were exchanged with imported goods coming from Attica and other Mediterranean regions, including silver objects (Vickers 2017), wine, oil, fine and decorated wares, glass, and stone materials.

The quantification and ratios of the different goods, raw, semi-finished, and finished are not known, mainly due to a lack of detailed studies, calculations, and provenance analyses (as made, for instance, for Bronze Age Europe, Kristiansen *et al.* 2018). In addition, we may assume that other minor products, and several cultural influences and lifestyles, arrived in Spina, and from there spread across the continent, as seen with board games (Gill 2016). In this case, Spina acted as a catalyst for the diffusion of manufactured goods that brought with them new 'lifestyle' values (drinking wine together, above all), and even social infrastructures to maintain such exchange and lifestyles (Sherratt 2016).

Several other research questions remain to be addressed. What kind of intermediaries were involved, both on an international and regional scale? What were their social status, independence, and profit margins? Moreover, apart from maritime routes, what inland trade paths and trajectories were controlled (directly or indirectly), or simply travelled by the Spineti? One conceivable terrestrial *and* fluvial route connected Spina, the outposts, and fords along the Po River (Bondeno and Mirandola), and Forcello di Bagnolo S. Vito (Komp *et al.* this volume). Other paths towards the Emilian Apennine foothills and the southern passes are also more than plausible (Pseudo Skylax describes a three-days path connecting Pisa with Spina).

In more general terms, a complex network of connectivity and different ways of interaction between local communities, local or foreign traders, and other social bodies or individuals must be envisaged. Some intra-site developments, like the increasing pottery production, or the amount of imports through different periods, can add detail to this kind of scenario. Another open issue is the increasing economic and political competition between different *emporia* and trade centres of the Adriatic and the Po Valley, between the 6th and 4th centuries BC. In other terms, Adria and Spina, among others, were all nodes in a common trade system. But were they integrating each other, or were they in competition? Since their administrative and political structures are not well-known (were they independent city-states? Or perhaps 'colonies' depending on sovereign motherlands?), for lack of epigraphical and written sources, conflictual and dependency relations are hardly traceable.

However, it is striking that several of these trading sites, Adria, Spina, Forcello, were founded (or rearranged) almost simultaneously, around 530 BC, showing very similar regular planning and building solutions: a grid of orthogonal canals and *insulae*, similar metrological scale, and the widespread use of timber architecture. Does this convergence suggest the presence of some forms of communal, social, and political structure, sharing the design and organisation of new commercial centres? Or was it simply the swift transmission of specialised skills and technical knowledge, thanks to the mobility of artisans and work teams?

From a societal point of view, we must also recognise that the widening of contacts and the likely waves of immigration led, in Spina, to a multicultural and multilingual environment, testified to by the hundreds of graffiti and name inscriptions found both in the settlement area (fig. 13.7.3) and inside the grave assemblages (Govi 2017; Zamboni 2016a). While Etruscan appears to be the primary language, Greek and other pre-Roman dialects are also attested. In Spina more than ten complete or partial alphabets, written in the northern Etruscan dialect, and scratched on both local and Greek imported pottery sherds, have been found. Alphabets are of course powerful tools for learning and practicing writing, extremely useful especially in a multicultural environment and inside a port of trade.

Instead of debating around the ancient ethnically biased labels, 'Greek' versus 'Etruscan', Spina should be interpreted as a model of interaction, a commercial town able to gain, in few decades, a key position in the Mediterranean trade network and international politics (the Delphi treasury), with multiple and adaptive identities useful in dealing with different partners and customers. A large part of the Spina society was likely made of merchantmen, traders, and workers. Both the grave goods and the palaeoanthropological data clearly suggest widespread prosperity, a life expectancy above the average for the period (Masotti *et al.* 2013), and a low degree of hierarchy (Malnati 2004). The role of seafaring and seafarers inside Spina's society can only be assumed, due to the scarcity of material evidence both from the settlement and the grave assemblages.

Finally, why did Spina decline and disappear between the late 4th and the 3rd centuries BC? We should probably envisage multiple causes, including the political, international crisis (the invasion of the Gauls after 388 BC, the end of Etruscan dominion north of the Apennines, and the starting of Roman conquest towards the end of the 3rd century BC). Other key factors were the decline of Athens, historically the first partner of Spina, and also probably a worsening of the environmental setting, coupled with the shifting of the Po River (Balista and Berti 2017; Balista *et al.* 2007). The settlement was probably attacked by a military force around the mid-4th century BC, as suggested by burned layers and the presence of clay and lead sling bullets (see above). On the other hand, the cemeteries show for this period an increase of depositions, usually explained with the arrival of immigrants and fugitives from neighbouring collapsed towns of the Po Valley (Desantis 2017).

During the last period of the town (late 4th-early 3rd century BC), there is a significantly higher number of goods from southern Italy and Sicily, and a continuous decline of Attic imports. Moreover, local production tried to supply and relocate in the market with new products, such

as the new painted Alto Adriatica ware. In the last stage, Spina seems to have become a minor artisanal place for sea salt extraction and other secondary activities. After the abandonment of Spina, the territory where once the town prospered became, in the centuries to follow, a peripheral landscape, with rural *villae* and *fossae* during the Roman period. Soon after, the water of the lagoon covered all of the sunken remains, and the very memory of Spina was lost.

A.M., L. Z.

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